WHAT IS CLAIMED IS:

1. A nanocomposite optical plastic article, comprising:

a plastic host material having a temperature sensitive optical vector x;

a core shell nanoparticulate material dispersed into said plastic host material, said core shell nanoparticulate material having a core defined by a nanoparticulate material having a temperature sensitive optical vector x_1, a shell defined by a coating material layer coated onto said core, said shell having a temperature sensitive optical vector x_2 and wherein said temperature sensitive optical vector x_1 is directionally opposed to said temperature sensitive optical vector x of said plastic host material.

2. The nanocomposite optical plastic article recited in claim 1 wherein said temperature sensitive optical vector x is defined as an index of refraction $n_{\text{plastic host}}$, said temperature sensitive optical vector x_1 is defined as an index of refraction n_{core}, and wherein said temperature sensitive optical vector x_2 is defined as an index of refraction of the shell n_{shell}, wherein $n_{\text{shell}} < n_{\text{plastic host}} < n_{\text{core}}$.

3. The nanocomposite optical plastic article recited in claim 1 wherein said plastic host material comprises a material selected from the group consisting of: polymethylmethacrylate, polystyrene, polycarbonate, cyclic olefin polymer, polysulfone, polyethersulfone, diallyl glycolcarbonate, epoxides, thermoset polyesters, and blends and copolymers of those listed.

4. The nanocomposite optical plastic article recited in claim 1 wherein said nanoparticulate material has a particle size of about 15nm.

5. The nanocomposite optical plastic article recited in claim 1 wherein said plastic host material is polymethymethacrylate.

6. The nanocomposite optical plastic article recited in claim 4 wherein said nanoparticulate material comprises silica nanoparticles.

7. The nanocomposite optical plastic article recited in claim 4 wherein said nanoparticulate material comprises magnesium oxide nanoparticles.

8. The nanocomposite optical plastic article recited in claim 4 wherein said nanoparticulate material comprises zinc sulfide nanoparticles.

9. The nanocomposite optical plastic article recited in claim 8 wherein said zinc sulfide nanoparticles have a particle size of about 20nm, said zinc sulfide nanoparticles being provided with a silica coating layer, said silica coating layer having a thickness in the range from about 5nm to about 17nm.

10. The nanocomposite optical plastic article recited in claim 8 wherein said zinc sulfide nanoparticles have a particle size of about 10nm, said zinc sulfide nanoparticles being provided with a 3nm thick coating layer of magnesium fluoride forming a core shell nanoparticulate material, said core shell nanoparticulate material being dispersed at 5 to 50 wt-% in a polycarbonate plastic host material.

11. The nanocomposite optical plastic article recited in claim 1 wherein said nanoparticulate material comprises a material selected from the group consisting of: ALON, aluminum oxide, calcium carbonate, magnesium aluminate, yttrium oxide, zinc sulfide, cadmium sulfide, and potassium titano phosphate.

12. The nanocomposite optical plastic article recited in claim 1 wherein said nanoparticulate material has a particle size less than about 40 nm.

13. The nanocomposite optical plastic article recited in claim 1 wherein said nanoparticulate material has a particle size less than about 20 nm.

14. The nanocomposite optical plastic article recited in claim 1 wherein said coating material layer has a temperature sensitive optical vector x_2, wherein x_2 is directionally opposed to said temperature sensitive optical vector x of said plastic host material.